

**CLAIMS**

1           1.     A method for detecting signal conditions for a compressed information  
2 stream, comprising the steps of:

3                 detecting, within a pre-defined search window, alternate-mode conditions and  
4 valid frames within the compressed information stream; and

5                 outputting an indication that a valid signal is detected, when an alternate-mode  
6 condition and at least one valid frame are both detected within a same one of the  
7 predefined search window.

1           2.     The method of claim 1, further comprising the step of outputting another  
2 indication that an invalid signal condition is detected, when at least one of the  
3 alternate-mode condition is no longer detected and a valid frame has not been  
4 detected for a predetermined time period.

1           3.     The method of claim 2, wherein the invalid signal condition comprises  
2 one of a weak signal condition and a no signal condition.

1           4.     The method of claim 2, further comprising the steps of:  
2                 detecting errors in the compressed information stream;  
3                 detecting alternate mode conditions in the compressed information stream;  
4                 and  
5                 continuously resetting a size of the predefined search window, each time an  
6 alternate mode condition is detected without any error, to avoid a false positive  
7 indication that the invalid signal condition is detected.

1           5.     The method of claim 1, wherein the compressed information stream is  
2 stored in a buffer, and said detecting step comprises the step of determining whether  
3 data in the buffer is valid.

1           6.     The method of claim 1, wherein said detecting step comprises the step  
2 of determining the compressed information stream has a valid header and time stamp  
3 information.

1           7.     The method of claim 1, wherein the compressed information stream  
2 comprises an MPEG stream and wherein said detecting step comprises the step of  
3 determining whether an MPEG header and MPEG data corresponding to the MPEG  
4 stream are valid.

1           8.     The method of claim 7, wherein the MPEG streams are stored in a  
2 Packetized Elementary Stream (PES) buffer, and said detecting step comprises the  
3 steps of:  
4           determining whether PES data in the PES buffer is valid;  
5           determining whether Packetized Elementary Stream (PES) header and time  
6 stamp information corresponding to the MPEG streams are valid; and  
7           determining whether an MPEG header and MPEG data corresponding to the  
8 MPEG streams are valid.

1           9.     The method of claim 1, further comprising the steps of:  
2           detecting errors in the compressed information stream;

3           modifying a weak signal counter, when an error is detected in a given frame of  
4 the compressed information stream in a normal mode, the weak signal counter  
5 indicating a number of weak signal conditions detected within a given time period;  
6           comparing the weak signal counter to a frame count threshold, the frame count  
7 threshold indicating a total number of frames within a given time period; and  
8           outputting another indication that a weak signal condition is detected, when the  
9 weak signal counter is greater than the frame count threshold.

1           10. The method of claim 1, further comprising the steps of:  
2           detecting errors in the compressed information stream;  
3           determining whether the predefined search window has elapsed;  
4           modifying a weak signal counter, when an error is detected in a given frame of  
5 the compressed information stream in an alternate mode condition and the  
6 predefined search window has elapsed, the weak signal counter indicating a number  
7 of weak signal conditions detected within a given time period;  
8           comparing a frame count threshold to the weak signal counter, the frame count  
9 threshold indicating a total number of frames within a given time period; and  
10          outputting another indication that a weak signal condition is detected, when the  
11 weak signal counter is greater than the frame count threshold.

1           11. The method of claim 1, wherein the alternate mode condition is  
2 presented by flag a trick mode flag.

1           12. A method for detecting signal conditions for trick mode Motion Picture  
2 Experts Group (MPEG) streams, comprising the steps of:

3           detecting, within a predefined search window, trick mode flags and valid  
4 frames within the trick mode MPEG streams; and  
5           outputting an indication that a valid signal is detected, when a trick mode flag  
6 and a valid frame are both detected within a same one of the predefined search  
7 window.

1           13. The method of claim 12, further comprising the step of outputting  
2 another indication that one of a weak signal condition and a no signal condition is  
3 detected, when at least one of the trick mode flag is no longer detected and the valid  
4 frame has not been detected for a predetermined time period.

1           14. An apparatus for detecting signal conditions for a compressed  
2 information stream, comprising:  
3           means for detecting, within a pre-defined search window, alternate-mode  
4 conditions and valid frames within the compressed information stream; and  
5           means for outputting an indication that a valid signal is detected, when an  
6 alternate-mode condition and at least one valid frame are both detected within a  
7 same one of the predefined search window.

1           15. The apparatus of claim 14, further comprising means for outputting  
2 another indication that an invalid signal condition is detected, when at least one of the  
3 alternate-mode condition is no longer detected and a valid frame, including the at  
4 least one valid frame, has not been detected for a predetermined time period.

1           16. The apparatus of claim 15, wherein the invalid signal condition  
2 comprises one of a weak signal condition and a no signal condition.

1           17. The apparatus of claim 15, further comprising:  
2 means for detecting errors in the compressed information stream;  
3 means for detecting alternate modes of the compressed information stream;  
4 and  
5 means for continuously resetting a size of the predefined search window, each  
6 time an alternate mode condition of the compressed information stream is detected  
7 without any error, to avoid a false positive indication that the invalid signal condition is  
8 detected.

1           18. The apparatus of claim 14, wherein the compressed information stream  
2 is stored in a buffer, and said means for detecting comprises means for determining  
3 whether data in the buffer is valid.

1           19. The apparatus of claim 14, wherein said means for detecting comprises  
2 means for determining whether the compressed information stream contains valid  
3 header and time stamp information.

1           20. The apparatus of claim 14, wherein said means for detecting comprises  
2 means for determining whether a header and data corresponding to the compressed  
3 information stream are valid.

1           21.   The apparatus of claim 14, wherein the compressed information stream  
2 is stored in a buffer, and said means for detecting comprises:

3           means for determining whether data in the buffer is valid;

4           means for determining whether header and time stamp information  
5 corresponding to the compressed information stream are valid; and

6           means for determining whether an header and data corresponding to the  
7 compressed information stream are valid.

1           22.   The apparatus of claim 14, further comprising:

2           means for detecting errors in the compressed information stream;

3           means for modifying a weak signal counter, when an error is detected in a  
4 given frame of the compressed information stream in a normal mode, the weak signal  
5 counter indicating a number of weak signal conditions detected within a given time  
6 period;

7           means for comparing the weak signal counter to a frame count threshold, the  
8 frame count threshold indicating a total number of frames within a given time period;  
9 and

10          means for outputting another indication that a weak signal condition is  
11 detected, when the weak signal counter is greater than the frame count threshold.

1           23.   The apparatus of claim 14, further comprising:

2           means for detecting errors in the compressed information stream;

3           means for determining whether the predefined search window has elapsed;

4           means for modifying a weak signal counter, when an error is detected in a  
5 given frame of the compressed information in an alternate mode condition and the

6 predefined search window has elapsed, the weak signal counter indicating a number  
7 of weak signal conditions detected within a given time period;

8 means for comparing a frame count threshold to the weak signal counter, the  
9 frame count threshold indicating a total number of frames within a given time period;  
10 and

11 means for outputting another indication that a weak signal condition is  
12 detected, when the weak signal counter is greater than the frame count threshold.

1 24. The apparatus of claim 14, wherein the alternate mode condition is  
2 represented by a trick mode flag.